Title: An Acoustic Device Comparison: Evaluating the use of three types of bat detectors for community science.

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Overview/Methods:

On August 19, 2020 on the Volente Tract of the Balcones Canyonlands Preserve we compared acoustic data collected from three different bat detection devices: Echo Meter Touch 2 (EMT), Audiomoth acoustic monitor, and SM4 Mini Bat Detector. The survey began at 20:38 (~30 minutes after sunset) and lasted for 1 hour. The SM4 Mini and Audiomoth were placed on a tripod next to the Volente pond for the duration of the survey. During the 1-hour time period surveyors walked a 1-mile loop three times while using the EMT. If a bat was detected with the EMT surveyors paused for 30 seconds and then continued walking. The Audiomoth device and SM4 Mini devices will record continuously during the one-hour survey time. After surveying the study plot for 1 hour the surveyor turned off all three acoustic devices.

After the survey all recorded calls were run through the SonoBat software and then vetted by our Acoustic Data Specialist Christen Long.

Results

We recorded 7 different confirmed species of bats during our Bat Walk. The SM4 Mini recorded the most species as well as the most individual bats, followed by the Audiomoth. The Echo Meter Touch recorded the fewest number of species. All confirmed calls are in the chart below:

	Lasirus borealis	***Lasiurus cinereus***	***Lasiurus intermedius***	***Lasionycteris noctivagans***	***Nycticeius humeralis***	***Perimyotis subflavus***	***Tadarida brasiliensis***
Audiomoth	14	5	6	2	18	6	4
EMT	16		2	1	3	6	17
SM4 mini	54	14	1	3	51	12	32

This study is ongoing, and we will add this data to our previously conducted pilot walks and will begin to do more walks starting Spring 2021.